

WHAT IS CLAIMED IS:

1. An image encoding method of dividing image signals into blocks, performing an orthogonal transform of each block, reading resultant orthogonal transform coefficients to obtain a coefficient string, and performing entropy coding thereof, the image encoding method comprising:

a block selecting step of selecting a size of a block for the orthogonal transform, out of a plurality of blocks of different sizes;

a coefficient string dividing step of, when a block of a size larger than a minimum size is selected in the block selecting step, dividing a coefficient string in said block into a plurality of coefficient strings of a length equal to that of a coefficient string in a block of the minimum size; and

an encoding step of performing entropy coding adapted to the coefficient string in the block of the minimum size.

2. An image decoding method of decoding encoded data encoded by an image encoding method of dividing image signals into blocks, performing an orthogonal transform of each block, reading resultant orthogonal transform coefficients to obtain a coefficient string, and performing entropy coding

thereof, the image decoding method comprising:

a block selecting step of selecting a size of a block for the orthogonal transform, out of a plurality of blocks of different sizes;

5 a decoding step for performing decoding of the encoded data by entropy coding adapted to a coefficient string in a block of a minimum size out of the plurality of blocks; and

a coefficient string constructing step of, when
10 a block of a size larger than the minimum size is selected in the block selecting step, constructing a coefficient string of the block of the larger size from a plurality of coefficient strings decoded in the decoding step.

15 3. An image encoding apparatus of dividing image signals into blocks, performing an orthogonal transform of each block, reading resultant orthogonal transform coefficients to obtain a coefficient string, and performing entropy coding thereof, the
20 image encoding apparatus comprising:

block selecting means for selecting a size of a block for the orthogonal transform, out of a plurality of blocks of different sizes;

coefficient string dividing means for, when a
25 block of a size larger than a minimum size is selected by the block selecting means, dividing a

coefficient string in said block into a plurality of coefficient strings of a length equal to that of a coefficient string in a block of the minimum size; and

5 encoding means for performing entropy coding adapted to the coefficient string in the block of the minimum size.

4. The image encoding apparatus according to Claim 3, wherein the coefficient string dividing
10 means is configured to read coefficients of the coefficient string from the lowest in a low frequency region and assign the read coefficients one by one in order to the plurality of coefficient strings of the length equal to that of the coefficient string in the
15 block of the minimum size, thereby obtaining the divided coefficient strings.

5. The image encoding apparatus according to Claim 3, wherein the coefficient string dividing
20 means is configured to read coefficients of the coefficient string from the lowest in a low frequency region and repeatedly perform reading of coefficients by the number equal to the number of coefficients in the coefficient string in the block of the minimum size to obtain a divided coefficient string, thereby
25 obtaining the divided coefficient strings.

6. An image decoding apparatus of decoding

encoded data encoded by an image encoding method of
dividing image signals into blocks, performing an
orthogonal transform of each block, reading resultant
orthogonal transform coefficients to obtain a
5 coefficient string, and performing entropy coding
thereof, the image decoding apparatus comprising:

block selecting means for selecting a size of a
block for the orthogonal transform, out of a
plurality of blocks of different sizes;

10 decoding means for performing decoding of the
encoded data by entropy coding adapted to a
coefficient string in a block of a minimum size out
of the plurality of blocks; and

coefficient string constructing means for, when
15 a block of a size larger than the minimum size is
selected by the block selecting means, constructing a
coefficient string of the block of the larger size
from a plurality of coefficient strings decoded by
the decoding means.

20 7. The image decoding apparatus according to
Claim 6, wherein the coefficient string constructing
means is configured to read coefficients in the
plurality of coefficient strings decoded by the
decoding means, from the lowest in a low frequency
25 region and write the coefficients read out of the
respective coefficient strings, one by one in order

into a new coefficient string from the low frequency region, thereby obtaining the constructed coefficient string.

8. The image decoding apparatus according to Claim 6, wherein the coefficient string constructing means is configured to read coefficients in the plurality of coefficient strings decoded by the decoding means, from the lowest in a low frequency region and write the read coefficients in units of the original coefficient strings into a new coefficient string from the low frequency region, thereby obtaining the constructed coefficient string.

9. An image encoding program for dividing image signals into blocks, performing an orthogonal transform of each block, reading resultant orthogonal transform coefficients to obtain a coefficient string, and performing entropy coding thereof, the image encoding program letting a computer execute:

a block selecting step of selecting a size of a block for the orthogonal transform, out of a plurality of blocks of different sizes;

a coefficient string dividing step of, when a block of a size larger than a minimum size is selected in the block selecting step, dividing a coefficient string in said block into a plurality of coefficient strings of a length equal to that of a

coefficient string in a block of the minimum size;
and

an encoding step of performing entropy coding
adapted to the coefficient string in the block of the
5 minimum size.

10. An image decoding program for decoding
encoded data encoded by an image encoding method of
dividing image signals into blocks, performing an
orthogonal transform of each block, reading resultant
10 orthogonal transform coefficients to obtain a
coefficient string, and performing entropy coding
thereof, the image decoding program letting a
computer execute:

a block selecting step of selecting a size of a
15 block for the orthogonal transform, out of a
plurality of blocks of different sizes;

a decoding step for performing decoding of the
encoded data by entropy coding adapted to a
coefficient string in a block of a minimum size out
20 of the plurality of blocks; and

a coefficient string constructing step of, when
a block of a size larger than the minimum size is
selected in the block selecting step, constructing a
coefficient string of the block of the larger size
25 from a plurality of coefficient strings decoded in
the decoding step.